Department of Toxic Substances Control

Linda S. Adams
Secretary for
Environmental Protection

Maureen F. Gorsen, Director
8800 Cal Center Drive
Sacramento, California 95826-3200

Arnold Schwarzenegger
Governor

STATEMENT OF BASIS
for the
CORRECTIVE ACTION REMEDY SELECTION
GENERAL DYNAMICS OTS (CALIFORNIA), INCORPORATED
32727 CORRAL HOLLOW ROAD
TRACY, CA
EPA ID NO. CAD 006 267 762

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Introduction

The California Environmental Protection Agency, Department of Toxic Substances Control (DTSC) has prepared this Statement of Basis for Resource Conservation Recovery Act (RCRA) Corrective Action Remedy Selection for General Dynamics OTS (California), Incorporated (the "Facility"), formerly known as Primex Technologies, 32727 Corral Hollow Road, Tracy, California.

The Revised Corrective Measures Implementation Work Plan (CMI Work Plan, July 2007), Solid Waste Management Unit No. 21 (SWMU #21) presents the scope of work for corrective measures required to address groundwater contamination at the site. The corrective action process for the Facility has identified SWMU #21 (former large aboveground mineral oil storage tank) as an area which requires remediation due to the presence of mineral oil in the groundwater. Mineral oil in groundwater is generally considered non-toxic; however, mineral oil is present beneath the Facility at concentrations above Central Valley Regional Water Quality Control Board's (CVRWQCB's) Secondary Maximum Contaminant Level of 100 parts-per-billion (ppb).

Facility History and Corrective Action

The approximate 500-acre General Dynamics facility is located approximately 50 miles east of San Francisco and six miles southwest of downtown Tracy in a section of the Altamont Hills known as Elk Ravine. Surrounding land usage includes cattle grazing land to the north and east and the Lawrence Livermore National Laboratories (LLNL) Site 300 to the south and west. Since 1965, activities at the Facility had included research and development of explosive devices; prior to that time, the site was

undeveloped agricultural land. The adjacent LLNL Site 300 is also engaged in research and development of explosives. The research and development of explosive devices at the Facility involved the use a hazardous materials and the generation of hazardous and non-hazardous wastes. The constituents of concern (COCs) at the site included petroleum-based fluids (including diesel fuel, used motor oil, mineral oil), volatile and semi-volatile organic compounds, Polychlorinated Biphenyls (PCBs), and the metals beryllium, lead and chromium.

A RCRA Facility Assessment (RFA) was prepared for the site in March, 1993. The RFA involved review of all past records and management practices and a site visit to identify all areas where hazardous materials and waste could have been released. A total of 26 Areas of Concern (AOCs) were identified in the RFA.

Past operations at the site also included a number of hazardous waste storage and treatment units. These units have already been closed under the supervision of DTSC. Units for which closure has been approved include an open burning pit, solid waste burial trench, surface impoundment for photo wash water, and wash water discharge units. Closure for these units was approved by DTSC on December 16, 1994. A Hazardous Waste Facility Permit was issued to Primex on July 20, 1997 to operate a Closed Vessel Detonation Unit (CVD). Closure of the CVD was approved by DTSC on June 7, 2000.

Of the 26 AOCs identified in the RFA prepared in March 1993, five areas required further investigation in the RFI Workplan. These areas were the following:

AOC #3 – A high explosive test area with the possibility of beryllium residues in soil.

AOC #4 – A concrete pad that was used for storage of drums containing fuels (mostly diesel fuel) with possible petroleum hydrocarbon impacts to soil.

AOC #5 – A portable diesel generator and fuel tank with possible petroleum impacts to soil.

SWMU #10 – A concrete pad used to store motor oil with possible petroleum hydrocarbon and metals impacts to soil.

SWMU #21 – An area adjacent to a 100,000-gallon oil tank, used to store insulating oil for electrical equipment with possible petroleum hydrocarbon, metals, and PCB impacts to soil.

In 1999 a RCRA Facility Investigation (RFI) Work Plan was approved by DTSC; the results were presented in a RFI Report, dated February 16, 2000. Soils at the Facility were tested for PCBs by EPA Method 8082, metals by EPA Method 6010, total petroleum hydrocarbons as diesel and gas (TPH-d and TPH-g) by EPA Method 8015m, volatile organics by EPA Method 8020, and for total oil and grease (TOG) by EPA Method 1664. The results of laboratory analysis of on-site soil were compared to United States Environmental Protection Agency's Preliminary Remediation Goals (PRGs) for residential use; for hydrocarbons and oil and grease without hazardous constituents, a cleanup level of 1000 parts-per-million (ppm) was approved. The results of the testing showed that elevated levels of hydrocarbons and oil and grease existed in two locations:

1. **Area of Concern #4, Fuel Storage Area**. Soil was found to be impacted by TPH-d at concentrations up to 860 ppm. The quantity of impacted soil was estimated at 10 cubic yards.

2. **Solid Waste Management Unit (SWMU) #21, Oil Spill Area.** Soil was found to be impacted by petroleum hydrocarbons (diesel) and Oil and Grease at concentrations up to 7,100 ppm and 2,300 ppm, respectively. The quantity of impacted soil to be excavated was estimated at 57 cubic yards.

The Corrective Measures Study Workplan (May 11, 2000) recommended excavation of all impacted soils followed by confirmation sampling to ensure removal of all soils above the approved cleanup level. Remedial activities at the site included the removal of approximately 1,200 tons of hydrocarbon impacted soil from SWMU #21; the excavated soils were transported and disposed of as regulated waste. Analytical results of soil collected from the excavation's sidewall and bottom revealed the presence of two areas within limited impact exceeding 1,000 ppm. Additional soil sampling was conducted to determine the vertical and horizontal extent of hydrocarbon contamination of soils. The results of the additional soil sampling indicated that the hydrocarbon impact to soil is varied and subject to permeability characteristics. Nevertheless, the data obtained to date indicates that the residual hydrocarbon concentrations remaining in subsurface soils beneath the site are relatively low. In 2005, eight groundwater monitoring wells were installed near SWMU #21. The concentrations of mineral oil identified in groundwater fluctuate seasonally. Groundwater sampling and monitoring data suggest that the area of mineral oil in groundwater is contained and had not migrated significantly beyond the area immediate to SWMU #21.

A Revised Corrective Measures Implementation Work Plan (CMI Work Plan) for SWMU #21 was prepared by Chow Engineering, Inc. dated July 2007. The CMI Work Plan recommends a Remedy Selection that would enhance natural attenuation of groundwater contamination at the Facility by adding a hydrogen peroxide solution to groundwater. While bench test results were inconclusive with respect to the in vitro effect on concentrations of mineral oil in groundwater, deleterious effects, such as the release of oxidized chemicals (i.e. hexavalent chromium), did not occur.

Environmental Setting

Land Use: The Facility is located in an area zoned for general agricultural use on the eastern slopes of the Altamont Hills. Elevation of the property ranges from 400 feet to about 1,280 feet above sea level. Slopes range from nine (9%) to forty eight percent (48%).

Surface Water: Corral Hollow Creek is a seasonal waterway which runs through the eastern portion of the property. The area of contamination to be remediated is situated more than 1500 feet of the creek.

Groundwater: Eight on-site groundwater monitoring wells were installed within the immediate vicinity of SWMU #21. The monitoring of these wells indicates that groundwater is present about 44 feet below ground surfaces and that most of the water may be flowing from Monitoring Well-3 toward the northeast with some toward the south.

Plant and Animal Life: The Facility is located within an isolated area which may support sensitive plant and animal habitats. Nevertheless, known mineral oil in groundwater and the activities associated with the selected remedy would not have an adverse impact to any sensitive species in the area, if present.

Site-Specific Cleanup Levels

The site-specific cleanup level for mineral oil in groundwater at the Facility is 100 ppb. This concentration is based on CVRWQCB's Secondary Maximum Contaminant Level (SMCL) for mineral oil in drinking water which is set at 100 ppb. SMCL for drinking water have been established and are based on qualitative analysis for aesthetics (i.e., taste, odor or color).

Remedy

DTSC guidelines require that the proposed remedy consider the future use of the property. The Facility is zoned agricultural/light industry; no plans have been presented to change this use designation, however, DTSC considers future residential use as a possibility since the area is still mainly agricultural. In consideration of the agricultural and potential future residential use of the area, DTSC has recommended mitigation of groundwater impacted with mineral oil above 100 ppb.

The proposed remedial action requires adding a hydrogen peroxide solution to the mineral oil contaminated groundwater to enhance natural attenuation (biodegradation). Prior to full implementation, a trial test will be performed in one of the on-site groundwater monitoring wells. After approximately two weeks, groundwater samples will be collected from the one subject and several down-gradient monitoring wells to evaluate the effectiveness of the treatment. If results are positive and show that

biodegradation is occurring, the following will take place. At the beginning of each month (for a period of three months), 500 hundred gallons of a two percent (2%) hydrogen peroxide solution will be injected into three up-gradient monitoring wells within the area of the groundwater plume. Groundwater monitoring will be conducted quarterly within the year following the initial injection period. The effectiveness of the treatment and need for further monitoring will be evaluated by DTSC following review of the data gathered.

This Remedy Selection is the final step required in the corrective action process to clean the site to standards appropriate for residential use of the property. At the conclusion of remediation period, DTSC will determine weather further corrective action will be required for the site.

Public Participation

Comments on this document may be submitted to DTSC during the 45-day comment period running from May 30, 2008 to July 14, 2008. A public notice was mailed to area residents, local governmental representatives, and other interested parties on the Facility's mailing list. The public notice was for the proposed Corrective Action Remedy Selection for Solid Waste Management Unit # 21. The Tracy Main Library will be used as a repository for the draft Statement of Basis, notice of exemption, Revised Corrective Measures Implementation Work Plan, and public notice.

If you have any questions regarding this Statement of Basis, please contact Mr. Michael Zamudio at (916) 255-6535.